

REMARKS

The claims have been amended in order to more particularly point out, and distinctly claim the subject matter which the applicants regard as their invention. The applicants respectfully submit that no new matter has been added.

Independent Claim 1, as amended, is to a method automatically marking an article which is transferred in one direction, including the steps of storing in advance a pattern for coloring an outer surface of the article with a plurality of coloring agents of respective colors different from each other, detecting a transfer speed of the article, supplying the coloring agents, supplying pressurized gas into a coloring agent supply source, and spouting a plurality of the coloring agents of respective specific amount, as a single drop at a time, to form aligned spots on the outer surface of the article, from a plurality of separate and spaced nozzles, for each respective color. The nozzles are arranged in a longitudinal direction of the article being transferred, with each nozzle having a separate coloring agent supply source connected therewith and a valve between the nozzle and the coloring agent supply source, toward the outer surface of the article according to the pattern in response to the detected transfer speed, where the coloring agents, as a single drop at a time, are spouted toward the outer surface of the article with the aid of bias of the supplied pressurized gas. Independent Claim 3, as amended, is to a device for automatically marking an article which is transferred in one direction, including storing means for storing a pattern for coloring an outer surface of the article with a plurality of coloring agents of respective colors different from each other, detecting means for detecting a transfer speed of the article, a plurality of separate and spaced nozzles, for each respective color. The nozzles are arranged in a longitudinal direction of the article being transferred,

with each nozzle having a separate coloring agent supply source connected therewith for supplying the coloring agent to the corresponding nozzle and a valve provided between the nozzle and the coloring agent supply source, for spouting the coloring agents of respective colors different from each other of respective specific amount, as a single drop at a time, to form aligned spots on the outer surface of the article, toward the outer surface of the article. Control means are provided to make a plurality of the nozzles spout the coloring agent, as a single drop at a time, toward the outer surface of the article according to the pattern in response to the transfer speed of the article detected by the detecting means, and a pressurized gas supply source is connected to the plurality of the coloring agent supply sources for supplying pressurized gas to the plurality of the coloring agent supply sources, where when the valve is opened, the coloring agents existing in the nozzles are spouted, as a single drop at a time, toward the outer surface of the article with the aid of bias of the pressurized gas supplied from the pressurized gas supply source.

In the Office Action, Claims 1, 2 and 3-8 were rejected under 35 U.S.C. § 103(a) as obvious in view of a combination of Bleich (U.S. 4,877,645), Liautauel (U.S. 3,995,772) and Katzschner (U.S. 4,503,437) and Claim 9 was rejected as obvious in view of those three references combined further with Traut (U.S. 5,237,917). Reconsideration and removal of these rejections are respectfully requested in view of the present claim amendments and the following remarks.

In the rejection, the Office Action asserts that Bleich shows a marking method where an article is transferred in one direction by storing in advance a pattern for coloring an outer surface of article with coloring agent and supplying the coloring agent and spouting a plurality of coloring agents as by spraying (inherently contains droplets) to form spots on the outer surface of the article,

from a plurality of separate and spaced nozzles, arranged in a longitudinal direction of the article being transferred. Bleich is also alleged to teach a plurality of coloring agents of respective colors different from each other, spouting a plurality of the coloring agents of respective specific amount where each nozzle has a separate coloring agent supply source connected therein toward the outer surface of the article according to the pattern in response to the detected transfer speed and where each nozzle for respective color is arranged in a longitudinal direction of the article being transferred. It is admitted that Bleich does not teach supplying a pressurized gas into a coloring agent, nor a valve between the coloring agent supply and the nozzle. Liautauel is cited to teach a method of putting colorant to an article where a compressed air supply exists on the coloring source and also as teaching a valve between the supply source and the nozzle. The Office Action alleges it would have been obvious to have a method of Bleich where a compressed air exists on the coloring supply and a valve is between the nozzle and the coloring supply as Liautauel teaches, because Liautauel teaches a suitable method of painting an article. It is also alleged to be inherent that the spouting of the coloring agents toward the outer surface of the article is due to the bias for the supplied air pressure. It is admitted that Bleich does not teach a detecting means for detecting the transfer speed of an article, but Katschner is cited to show such a feature.

The Traut reference is applied against Claim 9 to show cutting a cable after transfer.

Applicants respectfully submit that the Office Action is mischaracterizing the references when applying them to the present claimed method.

It is alleged that Bleich supplies the coloring agent and “spouting” the coloring agent by sprayers which would “inherently contains droplets” to form spots on the outer surface of the article,

from a plurality of separate spaced nozzles. In Bleich, however, the colorant material is directed in spray patterns that are applied so as to substantially cover the entire surface area of the wire. The spray patterns from the nozzles (46) are in either a conical or in a single plane or sheet. While the nozzles may provide a uniform spray of medium or large size droplets, there is no spouting of a single drop at a time as specified in the present method to provide spots on an article arranged in a longitudinal direction of the article as is required in the present method.

The Liautauel reference is to a non-pressurized dispenser for fluids and also is designed to dispense a fluid in a spray form, with an aperture and shape of the nozzle being arranged for a desired spray patterns (col. 3, lines 14-16). In Katzschner, there is no separate and spaced use of multiple nozzles to eject different colors, where each nozzle has a coloring agent supply source with a valve.

Claims 1 and 3 have been amended to emphasize the spouting as a “single” drop “at a time” which clearly distinguish over the spray pattern of Bleich and the other references. No such method or structure is taught or suggested by the prior art.

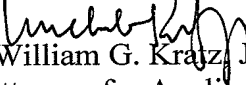
In view of the aforementioned amendments and accompanying remarks, Claims 1-9, as amended, are believed to be patentable and in condition for allowance, which action, at an early date, is requested.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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